Complete Summary

GUIDELINE TITLE

Protein in pre-dialysis patients.

BIBLIOGRAPHIC SOURCE(S)

Caring for Australasians with Renal Impairment. Protein in pre-dialysis patients. Nephrology 2005;10(Suppl 5):S181-3.

Voss D. Protein in pre-dialysis patients. Westmead NSW (Australia): CARI - Caring for Australasians with Renal Impairment; 2005 Dec. 6 p. [14 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Chronic kidney disease (CKD)

GUIDELINE CATEGORY

Evaluation
Management

CLINICAL SPECIALTY

Family Practice
Internal Medicine

Nephrology
Nutrition

INTENDED USERS

Dietitians
Physicians

GUIDELINE OBJECTIVE(S)

To summarise the available evidence that assesses whether the percentage of dietary protein intake per day is associated with mortality or morbidity

TARGET POPULATION

Patients with progressive chronic kidney disease on protein-restricted diets

INTERVENTIONS AND PRACTICES CONSIDERED

1. Assessment of dietary protein intake
2. Protein-restricted diet prescription, including consideration of
    - Protein content and biological value
    - Energy intake
    - Correction of plasma acidosis

MAJOR OUTCOMES CONSIDERED

- Mortality
- Hospitalization
- Malnutrition
- Caloric (energy) intake
- Morbidity

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: Medical Subject Heading (MeSH) terms and text words for kidney disease were combined with MeSH terms and text words for dietary proteins then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and search filters for identifying prognosis and aetiology studies. The search was carried out in Medline (1996 – November Week 2, 2003). The Cochrane Renal Group Trials Register was also searched for trials not indexed in Medline.

Date of searches: 27 November 2003.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding the safety of dietary protein in patients with chronic kidney disease from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, British Renal Association, and European Dialysis & Transplant Nurses Association/European Renal Care Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

No recommendations possible based on Level I or II evidence

Suggestions for Clinical Care

(Suggestions are based on Level III and IV evidence)

- For patients with progressive chronic kidney disease (CKD), who receive a protein-restricted diet, the protein content should not be lower than 0.75 g per kg ideal body weight (IBW) per day. The protein should be of at least 50% high biological value. An energy intake of at least 35 kCal/kg IBW/day to minimise protein-energy malnutrition must accompany a low protein diet. (*Level II evidence*)
- CKD patients should not commence a lower protein diet until any plasma acidosis is corrected. (*Level III evidence*)

It is recommended 15% to 20% of daily energy intake is in the form of protein. Over 50% of this protein should be of high biological value (see the Appendix in the original guideline document).

Low protein diets may increase the risk of zinc, selenium, and some B vitamin (riboflavin, pyridoxine, B_{12}) deficiencies.

It is important to appreciate that hypoalbuminaemia is not necessarily synonymous with malnutrition. Patients may have a low plasma albumin concentration due to decreased albumin synthesis or because they are acutely unwell or have evidence of an acute phase response, suggesting an underlying inflammatory (and therefore catabolic) process.

In some populations, the protein portion of the daily energy intake (DEI) exceeds 20% to 25% (some 2 g/kg/24 hours). Protein restriction diets below the level of 1.2 g/kg lean body weight/24 hours may be impracticable to implement.

Between 50% and 66% high biological protein content has been recommended or used (see Table 1 in the Appendix in the original guideline document). This recommendation is to ensure the limited protein taken is maximally utilised for its amino acid composition, and not for energy. It is imperative that adequate energy is consumed with the protein restriction diet to avoid protein-energy malnutrition (see Suggestions for Clinical Care in the "Energy intake in pre-dialysis patients" guideline).

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of protein-restricted diets in patients with chronic kidney disease

POTENTIAL HARMS

Low protein diets may increase the risk of zinc, selenium, and some B vitamin (riboflavin, pyridoxine, B_{12}) deficiencies.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation and Audit

Protein-restricted diets must be prescribed in conjunction with adequate energy intake. These require significant skill, expertise and time resources, and should not be embarked upon without the supervision of a suitably skilled renal dietician.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Dec

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: David Voss

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Caring for Australasians with Renal Impairment Web site.

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2006 May. 6 p.

Electronic copies: Available from the Caring for Australasians with Renal Impairment (CARI) Web site.

PATIENT RESOURCES

None available

NGC STATUS

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